THE VETERINARY RECORD

A Weekly Journal for the Profession.

EDITED BY WILLIAM HUNTING, F.R.C.V.S.

No. 222. SATURDAY, OCTOBER 8, 1892. VOL. V.

THE OPENING OF THE VETERINARY COLLEGES.

On Thursday no less than three of the Schools commenced the Session—each we understand with an extra large new entry of students. At the Royal Veterinary College Professor Mc Fadyean, the recently appointed Dean delivered the inaugural address. At the Royal (Dicks) College the address was given by the Principal, Professor Walley. At the New Veterinary College Professor Longden delivered the introductory.

We hope next week to supply a fuller account of the proceedings at each institution,

---

VIVISECTION.

Under this title the Church Congress at Folkestone has been discussing the subject of experiments on living animals. Three Bishops took part in the debate and one—the Bishop of Edinburgh—defended scientific men from the accusations made against them, and allowed that the work done in this country was justifiable. The anti-vivisectionist found supporters in two unknown medical men and in Mr. Lawson Tait, who however failed to put in an appearance. Science was represented by Victor Horsley, F.R.S. Dr. Wilks and Armand Ruffer who were supported by letters from Sir Andrew Clark, Sir Jas. Paget and Prof. Humphrey, who were unable to attend.

What is the position of the veterinary profession on this subject? The agitation kept up by opponents of experimental research is unceasing, and it may be that some day fresh legislation may be attempted. The direction of legislation will of course be dependent upon popular feeling, and veterinarians should speak with no uncertain voice in favour of the modern methods of arriving at truth. The whole controversy must be judged by our ordinary conception of what is useful and expedient. Perhaps no better basis for a practical consideration of the subject can be found than in the remarks made by the two judges who tried the appeal on the dishorning case. In a judgment delivered by Lord Chief Justice Coleridge it is said: "The mere infliction of pain, even of extreme pain is manifestly not by itself sufficient to constitute cruelty. Men constantly inflict great pain on one another and upon the brute creation either for reasons of beneficence, as in surgery or medicine, or under sanctions which warrant its infliction as in war or punishment. It is further lawful to inflict it if it is reasonably necessary."

In the same case Mr. Justice Hawkins said, "What amounts to a necessity or good reason for inflicting suffering upon animals is hardly capable of satisfactory definition. The amount of pain caused, the intensity and duration of the suffering and the object sought to be attained must always be essential elements for consideration. To attain one object, the infliction of more pain may be justified than would be ever tolerated to secure another. In each case however the beneficial or useful end sought to be attained must be reasonably proportionate to the extent of the suffering caused."

If it can be shown that experiments upon living animals have directly contributed to the cure or prevention of painful diseases and that the pain and suffering caused to the experimental animals was not disproportionate to the object attained—then we have a complete justification for these experiments.

If we consider what has been done for man and animals in relation to Rabies, Tetanus and Glanders we have an unanswerable case of justification. When to these we add the discoveries made in Tuberculosis and Anthrax, and the knowledge attained concerning inflammation and the healing of wounds our case is complete.

It has been said, and the remark was intended as a sneer, "that experiments on animals as a rule only discover the *cause* of disease whereas it is a *cure* that is wanted." It is very seldom a cure is discovered until the cause is known, and when the empirical instead of the experimental method is adopted, who can estimate the pain and suffering inflicted by what is called treatment, but which is really blind experiment upon innocent and sentient creatures. Many animals have been sacrificed in the laboratory during the last twenty years in the pursuit of truth, but how many thousands of animals and human beings have been the victims of cruelty and ignorance in hospitals and sick rooms in the pursuit of empirical cures?

Two thousand years of empiricism has explained few of the phenomena of disease. Twenty years of experimental research has given us the key to pathology, and promises a very full interpretation of the secrets of health and disease not otherwise attainable.

Shall we allow disease to spread, and pain and suffering to abide whilst we are groping in the dark for *cures?* or shall we do our best to prevent and relieve pain in man and brute by the aid of experiment—inflict pain on a small number of animals (under law and regulation) that thousands may escape or be relieved?

CASES AND ARTICLES.

SCROTAL HERNIA IN PIGS.

By W. M. Hutchinson, Fordyce.

In the extracts you published in your last issue from the paper by Prof. Dewar he says "The scrotum in the pig is situated more in the perineal region, and as they are perhaps of all animals most subject to scrotal hernia, it is very customary to press the testicle towards the anus before cutting down upon it, so as to obviate any risk of descent of bowel. The operator should, however, be provided with a needle and thread to stitch up the wound in the skin if necessary." He seems to infer from the situation of the scrotum that the pig is the most liable of all our domestic animals to scrotal hernia. Why is it not seen in the dog and cat? I am afraid the direction of the inguinal canal has nothing to do with it. How the making of the incision in the upper part of the scrotum obviates the risk of the descent of the bowel is difficult to comprehend. Besides being contrary to the principles of operative surgery it is totally devoid of any beneficial effect in preventing the descent of the bowel or its protrusion through the wound, therefore it should never be made in that situation.

Pigs with scrotal hernia, should always be castrated by the "covered operation," it is simple and easily performed. An assistant stands and holds up the pig by the hind legs with its back towards him. The operator stands at the right—except he is left handed—a little in front of the pig. after reducing the hernia he passes his left had backwards under the right hand of the assistant and grasps the testicle pushing it well forward, so that the incision may be made in the bottom of the scrotum. He now makes a large incision with a keen-edged knife through the skin and dartos, down upon the fibrous tunic taking great care not to cut the latter covering. When the incision is long enough slight pressure will enable the operator to seize the testicle with its covering and hold them securely. He now separates the dartos from the fibrous tunic—best done with the fingers—until the external ring is reached. The testicle is drawn out as far as the tunic will admit, and the spermatic cord is felt for and placed in front when a needle armed with a sufficiently long and strong ligature is passed through the tunic from side to side at the back of the cord close to the external ring, the needle is brought round in front and passed through the same hole if possible, the ends of the ligature are now drawn tight and tied with a reef knot in front, the ends are brought backwards and tied tightly behind. The part of the covering not ligatured will be included in the latter tying. The tunic with its contained testicle is cut off within an eighth of an inch of the ligature, the ends of the ligature, which should always hang outside the wound, are cut if too long, a little carbolic oil is poured into the wound, and the operation is completed. A fairly good ligature for a pig of a month old or so, is made by doubling or twisting strong linen sewing thread.

VETERINARY LIFE IN THE ARMY,

A STORY TOLD BY THREE OFFICERS.

By Kudyard Ripling.

Continued from page 171

Towards morning I fell into a disturbed sleep broken by the jolting of the conveyance, and shortly reached the second rest house soon after sunrise. The place was a perfect hovel, no convenience, plenty of dirt, and nothing but the eternal fowl to eat. The rest which one endeavoured to take was most imperfect, due to the buzzing of mosquitoes, and the fact that the wooden bed was occupied by other forms of animal life than myself. It was on this day that I made my first acquaintance with some of the pests of the country. I had woke up and got out of bed, and incautiously placed my feet in my slippers without shaking them first, my foot did not remain there long, for a sudden sharp prick at the point of the great toe, accompanied by a pain as if a red hot wire had suddenly been run for some distance into the foot, caused me to roar with agony; like lightening the pain shot up my leg, and invested the body, and while this was occurring a vicious looking object of a grey colour, like a diminutive lobster, with a tail curled over his back furnished at the end with a sharp prong, ran rapidly over the floor, I had indeed been stung by a scorpion. My knowledge of these matters was small, but my cries brought my servant and the keeper of the rest house, who did what lay in their power to relieve the intense pain I suffered. The native medicine gave little if any relief, for hours the agony lasted, the limb swelled, and it was evident that any further progress by road could not be thought of that night. How I cursed the luck which brought me into Her Majesty's Army, here I was, isolated in a jungle, no knowledge of the language, attended by people who had no knowledge of mine, no doctors within reach, suffering unutterable torture, and no possible means of escape! The day passed into evening, and the evening into night, and relief gradually came, leaving me worn out beyond description, and a prey to mosquitoes, fleas, and bugs. Even troop-ship life with its sea sickness was paradise to this!

When I had recovered sufficiently from the events just related, another attempt was made to reach my destination, and this was successfully accomplished five days from leaving the railway terminus. I entered Hellapore shortly after sunrise one morning, not having the faintest idea where to go to; the place was awake, for I found that duties could only be carried on here before sunrise and after sunset, and after much trouble I found an office occupied by a Staff officer, to whom I reported my arrival. He was the first European I had seen for five days, and I felt inclined to shake him vigorously by the hand and swear eternal friendship, but his manner was by no means genial; I did venture to tell him of my

On page 172 of our first issue of this story, the monthly pay of the young veterinary officer was omitted, it should have been £20.

railway experience and the life on the road, but he showed no surprise, briefly remarking that "I suppose these things are strange at first." I was not impressed with the warmth of my reception, after and taking certain papers departed for the cantonment of Hellapore which was a short distance away. I met a company of European Infantry on the road, it was represented by a small body of men, lean in appearance, haggard in looks, and whose faces were as white as the clothing they wore; had it not been that they were under arms I should have thought that they were hospital patients. I learned afterwards that the regiment had not been long out from England, and had suffered severely from fever. They were certainly showing the effects of this delightful climate. Engaging a house is not difficult work in India, I obtained one close to my work, and in a few hours it was furnished, viz., a bed, table tub and chairs, and shortly I made the acquaintance of those with whom I had to live, there were not many, the majority were on leave, and those left behind looked more like men washed out, than the acclimatised Anglo-Indian I had heard of; all told the same tale, a feverish unhealthy station, and no one knew why it was occupied excepting for the reason that they had barrack there.

As to professional matters, I had little to engage my attention of any very serious moment, many unhealthy wounds, plenty of skin disease, and a case or two of colic every twenty-four hours. The only men who looked in anything like health were the shoeing-smiths, the sergeant farrier was a pale worn anxious looking man, devoid of energy and spirit, due, as I soon heard, to family trouble; he had lost his wife and three children from cholera only a month or two before.

The duties were conducted anyhow, all European soldiers had to be in their quarters by 7.30. a.m. and natives looked after the horses for the remainder of the day; the animals were partly starved, insufficiently watered, and generally neglected, my frequent colic cases were readily understood, and as soon as I could, representations were made for an improvement in these directions; improvement was promised but relief slowly came; lying as we were in an out-of the-way station, things had gradually drifted into a state of rottenness which it was not easy to repair. No veterinary supervision had been exercised, except at spasmodic intervals, for years, this was due as I learned, to the fact that the department in this country was pared down to such an extent that one man had to do three or four stations working from a central point; these he had to visit at regular intervals, oftener if needed, had to travel from place to place during weather when even the natives shut themselves up to avoid the heat, and had to carry on his work at these places without the support of those in whose interest he was exposing his life in this ruthless manner.

Work done spasmodically is never done well, and these spasmodic inspections at intervals could never be of any value whatever, in consequence certain stations, Hellapore for example, had fallen into such a state of veterinary wretchedness, that to this, and others, it was determined to post a veterinary officer for some months continuous work, to pull the machine together.

All this I learned in a few days, and much as I already hated Hellapore, the prospect of another move in a few months time was far from cheering. Our life here was largely represented by the name of the place, my European colour soon left my cheeks, loss of condition was most marked, and in three months time I was nearly equal in appearance to the remainder of the Hellaporians.

For weeks we endured the most intense heat, a temperature of 102° was common at midnight, deaths from heat apoplexy were frequent, and though we longed for the rains, the old inhabitants knew too well what troubles they brought with them.

It is not correct to say that it never rained at Hellapore, it does not rain for nine months, but it certainly makes up for this during the remaining three. The monsoon, as it is termed, at last broke, the rain came down in a perfect deluge, and it rained continuously for some days; the country was in parts like one vast lake, the night was made hideous by the constant croaking of frogs, which produced a noise like rattling a copper pot, imagine tens of thousands of these rattling copper pots! Ants with wings appear, myriads pouring out of the earth, attracted by every light, fill one's room, table and dinner with their wings and bodies; wherever they touch the wings fall off, and are swept up in bushels by the servants; in fact, with the advent of rain, the whole force of nature's energy appears to be diverted to stimulating the production of animal and vegetable life, scorpions, centipedes, snakes, lizards, ants, bugs, eye-flies, and fleas abound; the country which a day or two ago was bare and sandy, now becomes covered with vegetation for the most part of a very rank kind, and the moisture laden atmosphere covers everything, even human life, with a blue mould; doors swell so that they cannot be closed, the black boots of yesterday are blue boots to day, one's furniture drops to pieces due to the softening of the glue used in the joints, and owing to the loss of radiation from the body, the damp muggy heat is unbearable and depressing, and one's joints and system feels like that of the furniture.

Why am I putting up with all this I repeatedly asked myself! What do I gain by it? *My pay and allowances are only Rs* 400 *a month*. If the rupee were worth two shillings the recompense would still be small enough, but as it is worth only about three fourths of that * the recompense is monstrously inadequate for the life of penal servitude one leads!

Whilst on the subject of pay, I may mention that although I joined the A.V.D. on the clear understanding that I was to obtain twenty pounds a month *exclusive* of allowances, yet I found on going to India that the Authorities there recognised no agreement into which the Home Authorities had entered with me, and paid me the same rate of pay which had been in vogue for years. This breach of faith embittered me considerably, for I felt that the people at home should have explained the condition of Indian pay to me, before I was weak enough to join.

All, however, in Hellapore agreed that whatever

* It is now much less.

troubles we had in the past, was nothing to what was in the immediate future. "Our sickly season will soon be here." said a gaunt-looking officer to me one day. "Sickly season!" I replied, looking at that pale-cheeked, hollow-eyed face, "Why, what do you call this, with a sickness of thirty per cent. and a funeral nearly every day?" "Bad enough," he replied, "but nothing to what it will be; this is my third season here, and I hope it will be my last." He little knew how true his wish would be.

"What is the cause of the sickness you anticipate?" "Fever principally; you see we are not very far from some miles of swamp; it is supposed the fever is generated there, for during certain times of the year it is fatal to anyone to attempt to pass through the place: the germs of this fever, or malaria as the doctors term it, are carried across this place when the wind blows from a certain quarter, and then half of us are down at one time, some slightly, others severely. The fever sets in with a violent chill, the body turning quite cold, and the nails blue; it is followed by intense heat, the body scarlet and sweating, and after some hours the attack passes off, leaving one limp and worn out; in from three to five days time it re-appears, to go through the whole process of a cold and hot stage. Quinine is now being served out to all the men, and a quinine parade, at which each man has to take his dose under the eyes of a doctor, will perhaps be a novelty to you. It is, however, necessary if we are to have any men fit for duty."

It was a novelty, but not for long; every morning on my way to the Infirmary I passed a parade of men, whose appearance can best be described by saying that they were saturated with malaria, each one being officially dosed with quinine.

It was late one evening when an orderly arrived at mess with a letter addressed to the commanding officer; it was from the doctor to say that several men had suddenly been seized with cholera, and from the fact that others were coming in, he dreaded lest a severe outbreak was imminent. The Colonel went at once to the hospital, by which time two of the men were dead, and eight others had been submitted to treatment, a hasty consultation followed, and it was determined to move the troops out early in the morning into cholera camp, and march them about the country. I was warned to go with them. At parade next morning we learned that ten other cases had occurred during the night, and besides the two fatal of the previous evening, there were several others in addition.

Can I ever forget the sinking of one's heart as we, a dejected mob, marched out of barracks, leaving our horses behind us, as no arrangements could be made for them, and with orders to strike camp every day. The appearance of that body of men, already weakened by fever, and expecting every hour to be their last was truly sad. One or two were unnaturally gay, singing and cursing freely, but I suspect much of it was bravado. The British soldier is a grand fellow, but he does not like cholera, and few men do. There is a difference between the man that fears a thing because it's a something to be avoided, and the man who "funks" on it, and is every moment expecting himself to be a victim. It is common experience in India that the latter die in numbers: "They frighten themselves into it" is the common expression, and it seems to possess a deal of truth. We only marched out a mile or two, and pitched camp, none too soon, for the rain commenced in deluge form, and poured all day. Well-built houses will not stand such rain nor will worn-out tents—soon I was over my ankles. I found it best to sit on a rough bed which I had brought, with my waterproof over me, and there I sat for hours; food was out of the question, no fire could live in such weather.

Towards the afternoon I heard some measured splashing passing my tent, and peeping out I recognised a hospital stretcher, the burden on the stretcher was groaning, the cramps were on him! "Rub my legs for God's sake! Give me brandy; do something to stop that blasted pain!!" I recognised the voice as being that of the man who marched out in the morning swearing and singing. I did not hear or see him again, he was buried in his cloak shortly after midnight, as soon as the rain had abated.

Nothing to eat is a fruitful predisposing cause of cholera, so that one and all of us were in a worse position than when we started that morning; no dinner that night, excepting some bread and a tin of asparagus brought out with the mess stores. Next morning, owing to the death of my noisy friend, we moved camp. I remarked that the gaunt officer, Major B———, who I recently mentioned spoke of the coming sickly season, was looking extremely ill. We suspected, but did not know, that he had the seeds of cholera in him; he was a plucky man, and though ill all night never complained, and foolishly never reported the circumstance. He was setting his men an excellent example by his steadiness and indifference to the demoralising surroundings. We soon reached our next camp, the tents were pitched, the sun came out and filled the atmosphere with vapour, but the tents were dried and for a time at least we were more comfortable; meals we had regularly this day, and all officers but one were present, viz. Major B———. He was found in his tent is a state of collapse and carried to hospital. I went with him, for having no professional occupation, I considered that I might possibly be of some use to the surgeons who were both by this time well nigh worn out.

I sat by his bed all that night, giving him small draughts of liquid to ease his burning thirst; he complained but little, and that only of intense weakness, but it was evident that his end was approaching. The dim hospital lamp showed me that a great change had taken place, his voice was reduced to a complete whisper, the hands and fingers were shrunken, and in a hollow voice he thanked the doctors and me for the little we had done, and within an hour was buried.

I felt his death, not because I knew much of the man, but what a difference to the blustering soldier who had died twenty-four hours previously! We buried him as well as we could, putting stones over

the body to prevent the jackalls from pulling it up. But what is the use of continuing the agony. I have told you as much as one cares to know of life in a cholera camp, we had twenty cases and nineteen deaths from the time we left Hellapore: our last case recovered. It rained nearly the whole time, and it would take a more powerful pen than I can pretend to wield, to picture the desolation, misery, and wretchedness of an Indian cholera camp. You who may read this, seated by a comfortable fire, with pleasant surroundings, and living in a healthy climate may pity our sufferings, but cannot imagine them.

The official world and public may read of cholera being prevalent at So-and-so in India, but it never occurs to them what a period of misery and suffering those wretched fellow-creatures are enduring, for the pleasure of holding India for this country.

To the longest day I live I shall never forget the scenes in this camp, nor the actual pleasure of returning to Hellapore once more. We were met on entering the station by the band of the Infantry Regiment, which had quite escaped the outbreak, which played us into the station to the ill-selected tunes of "Far Away," and "The Old Folks at Home." There are some people who never seem to be able to say or do the right thing, and in my own mind I classed the bandmaster of this regiment in that category, he might just as well have played the "Dead March in Saul"! the effect would have been quite as stimulating!!

(*To be continued*).

GLANDERS: ITS SPREAD AND SUPPRESSION.

By Professor WORTLEY AXE.

When, sir, you did me the honour to invite me here to-day to engage the attention of your Society with some question of "general interest" to the profession, I could not overlook the fact that an opportune occasion had arisen for the consideration of that now all-absorbing subject, glanders and farcy. Under any other circumstances than the present the introduction of this disease to your notice might have been regarded as an effort on my part in the rehearsal of ancient history, for there is hardly a veterinary medical society in the country which has not at one time or another—and in some instances many times—exhaustively discussed the clinical and pathological problems of the affection. I do not know that there is anything to be said in this connection that has not been said or written before, and with which the members of this Society and the profession as a whole are not more or less familiar. My purpose to-day is more especially to ask your attention to glanders in its sanitary relations, with the object of devising means for its extermination, and pressing upon the Legislature the urgent necessity of prompt and vigorous action in this direction. That a disease, the most deadly of its kind, should have been permitted to ravage our horse stock so long, and menace and destroy human life without a rational attempt at suppression, is a disgrace to the nation, and a distinct discouragement of the teachings and progress of veterinary sanitary science.

The lessons of epizootic outbreaks in this country, read by the light of recent experience, leave no room to doubt that glanders exists by sufferance only, and not by reason of any obstacle to its extermination. As with foot-and-mouth disease and pleuro-pneumonia, so with it, extermination only awaits the resolute and judicious application of our present knowledge of sanitary science and police.

Thirty years ago, when comparative pathology had hardly advanced beyond the "airs and humours" of the ancients, and when veterinary sanitation was a crude empiricism, with no pretentions to the dignity of a science, the existing state of our sanitary legislation in respect of animal diseases might have been regarded as a possible means to the end it was designed to effect. Since then, however, our acquaintance with the nature of contagia and the diseases they induce has, thanks to this and kindred associations, been vastly extended, and the frontier of comparative pathology has been pushed forward in every direction. The mode of spread of animal plagues, the means by which infection may be intercepted, the vitality of pathogenic organisms, and the conditions which enfeeble and destroy them, are questions to which veterinary surgeons and others have devoted an immense amount of thought and patient work; and it is only bare justice to our profession to state that while veterinary sanitary science has devised ample means for the suppression of many contagious animal disorders our, Legislature has continued to rely on statutes as impotent as they are antiquated, and on a system of administration as impossible of success as it is crude and vexatious.

There was a time, no doubt, when the stock-owners of this country failed to appreciate the teachings of preventive medicine, and when legislation was hampered and retarded by appeals and protestations of themselves and others whose interests they shared. If, however, they failed to recognise the merits of the one they did not overlook the futile and experimental character of the other; and from the view-point of to-day it will be admitted by all interested in animal plagues that our veterinary sanitary legislation has been for years "an aimless jumble of vexatious restrictions, embodying no rational attempt at suppression." As regards glanders and some other diseases, the same may be said of it now. Why this should be so, in face of the actual and possible sacrifices it involves, is a question which this meeting may reasonably submit to those in whose hands the economy and security of the country are entrusted.

Within the past few weeks public attention has been especially directed to this disease by the medical and lay press, owing, as it would seem, to the extraordinary loss of humanity resulting from it, and the opinion that glanders is now more prevalent than in the immediate past has consequently prevailed. Whether this is so or not is a question that cannot under existing circumstances be satisfactorily determined; but one thing is clear, as pointed out in the *Morning Advertiser*, viz. that the heavy fines recently inflicted on certain large horse-owners for disregard of the provisions of the Animals Order of 1886 have had the effect of awakening an unusual amount of vigilance and care in others, with the natural result that large numbers of animals affected with the disease have been marked out and condemned which under ordinary circumstances would have still remained unnotified and at large. It is by this extraordinary attention, arising out of fear of detection and the penalties that accrue from it, that the disease has been made to appear unusually prevalent, and not, I believe, to any actual increase in the malady itself. From the opportunities I have of being informed of the prevalence of glanders I have no hesitation in saying that there is hardly a stud in London of any considerable extent in which the disease has not existed in the immediate past, and there are perhaps few in which it does not exist at the present time in an active or latent condition.

As to the general prevalence of glanders, available

Read before the meeting of the Southern Counties V.M.A. at Red Lion Square, London, on Sept. 29th.

statistics show that during five years, from 1886 to 1890, only ten counties in England have altogether escaped the disease. In eight counties it has appeared every year, in nine it has occurred four years out of five, in five three years, in one two years, and in eight one year. The total number of outbreaks for this period in Great Britain is stated to be 5000, in the proportion of 4956 for England, 39 for Scotland, and 5 for Wales.

Although thus widely distributed, it is important to remark that the chief incidence of disease has fallen on London, in which there have been no less than 4296 outbreaks, leaving the small proportion of 731 outbreaks for the rest of the country. There can be no doubt that whenever glanders presents itself in country districts it is by horses removed from large towns, and in the majority of cases from our London stables. A few months ago I was called upon to inquire into an outbreak of disease in a stud of horses on a farm in North Yorkshire. The disease had been in existence for several months, and most if not all the animals in the stud were affected, and several had died.

Inquiry into the history of the horses, their incoming and their outgoing, brought to light the fact that about Christmas-time of last year a mare was purchased from a dealer who had bought her in London. This animal first showed signs of the disease and succumbed to it, and the infection spread and continued its work until the entire stud had to be destroyed. This, however, although recommended, was not carried out until many weeks after the detection of the disease.

Inquiry into an outbreak recently existing on a farm in Sussex revealed a similar set of circumstances, with a result that three young horses that had never been off the farm had to be destroyed. If we consider it in relation to counties, we find that Middlesex (except London) stands first with 248 outbreaks, and the adjoining counties of Essex, Surrey, Kent, and Hertford follow in the order named. The outbreaks in all the other counties in England and Scotland for the five years under consideration do not exceed 241, or 7 less than were recorded for Middlesex alone. I use these statistics not with the idea of giving you an insight into the actual prevalence of glanders in the country, but rather to show approximately the extent of its distribution and the relative proportions in which it exists in different divisions and counties of the kingdom. As Dr. Fleming recently pointed out, the statistics usually quoted are quite unreliable and afford no adequate notion of the extent of mortality arising out of it. It is perfectly clear, however, from these figures that glanders has its home in London, and that the chief offshoots of infection are in the adjoining counties. This centralised condition of the disease is a distinct advantage from a sanitary view-point, inasmuch as the sanitary machinery when brought into operation will be in touch, and if under one authority may be made to act in harmony and with much greater effect than can be produced when centres of disease are numerous and widely scattered. The prospect of success of measures of suppression is further heightened by the fact that the horse population of London is for the most part a settled one, and therefore favourable to continued observation and inspection.

Upwards of eighteen thousand horses die or are destroyed each year in the metropolitan district. Of this number probably one half succumb to accident and infirmity. Of the remaining 9000 that die from disease, it may, I think, be safely affirmed that 3000, or 33 per cent. are victims of glanders. If we allow for each animal so affected £25, we get £75,000 as the direct loss. To this sum may be added £20,000 for loss of services and other expenses, giving together a total annual loss of £95,000 for London alone. Such a sacrifice of our horse stock, arising out of what is unquestionably a preventable disease. Great, however, as this may be, the possibilities connected with the prevalence of glanders are so grave and terrible that no Government having the security of the country at heart can consistently permit its continuance.

Although the blessings of peace have long been preserved to us, international complications with hideous war as their outcome will surely arise in the future as in the past. In anticipation of such an event, horse-owners of this metropolis have been subsidised, and contracts entered into whereby remounts for our army may in certain contingencies be drawn from their studs. What would be the result of such a course under existing circumstances is not difficult to foresee. Glanders is admitted to be difficult to diagnose, and its introduction into our ranks in the course of a campaign would be inevitable — in such numbers, too, as would certainly cripple if it did not actually paralyse both our cavalry and artillery forces. Millions have recently been expended in strengthening our second line of defence, and it would be a crime if for two or three hundred thousand pounds the first should be permitted to risk the ignominy of defeat and disgrace. It is needless to point to the sacrifice of human life as a plea for the extermination of glanders in the absence of any justification of its continued presence. Glanders is a dangerous excrescence, which sanitary science, backed by the imperial purse, can at any time suppress, and its claims on the immediate attention of Government are not inferior to those of any contagious animal disorder.

Existing legislation in regard to glanders and farcy is governed by the Animals Order of 1886, wherein the provisions of the Act of 1878, as well as certain sections of the Act of 1886, are made to apply to them.

It hardly need be pointed out that the two common terms, "glanders" and "farcy," express different local manifestations of the same disease; notwithstanding this, however, we find an important difference in the sanitary legislation prescribed in the two cases. For instance, in the case of farcy it is competent but not compulsory on a local authority to prohibit or regulate the movement of diseased and contact animals out of any stable or other place; but this control may cease whenever the local authority deem it expedient, or when the indications of farcy are no longer present. So that when, as is frequently the case, the symptoms of the malady disperse, the animal, though still diseased, is permitted to go at large and spread infection without let or hindrance. The law gives no power to local authorities to slaughter, excepting where animals actually diseased are exposed on public highways or in public places. But what shall we say of an Act that permits glandered horses to be kept alive for several weeks, with no better provision of bringing about their ultimate destuction than a set of harassing restrictions and costly prosecutions?

This state of things is clearly sanctioned by Article 62 of the Animals Order of 1886, which provides that where a person having a horse, ass, or mule in his possesion, or under his charge, gives notice to a constable that the horse, ass, or mule is affected with glanders, or a person is convicted of an offence against the Act of 1878 by reason of his having failed to give such a notice in respect of any horse, ass, or mule; then if at any time thereafter it appears to the Local Authority, on a special report of a veterinary inspector or veterinary surgeon, that the horse, ass, or mule is alive at the end of fourteen days after the receipt by the Local Authority of that special report the Local Authority *may, if they "think fit,* within seven days thereafter serve on the owner of the horse, ass, or mule a notice in writing requiring him to slaughter it or to permit them to slaughter it within a reasonable time specified in the notice." Should the owner for any reason fail to comply with this request, the Local Authority is powerless to undertake the duty themselves, but may harass the owner into submission by re-

peated prosecutions and protracted restrictions—by a system of coercion that makes co-operation impossible and legislation hateful.

It has been said by a distinguished authority on glanders that "the delay allowed by the Act before compulsory slaughter of glandered horses can be enforced *does not* interfere with the effective stamping out of the disease," and we are told that the notion to the contrary is so much fiction, "founded on perusal of books." I am one of those who entertain this perverse view of the question, and I can assure you the conviction has not come to me through any such channel.

In the first place, compulsory slaughter, as I have already shown, is not provided for by any Act, and therefore cannot be enforced; but if it were otherwise, it surely will not be contended that to permit animals to live in the midst of others for two or three weeks when suffering from glanders is not, under existing circumstances, and having regard to the nature of the malady, an interference with the effective stamping out of the disease. It is true the law provides that horses affected with glanders must, as far as practicable, be kept separate from others not so affected; but in this London of ours, with its limited stable accommodation, separation, such as is contemplated by the Act and required as a sanitary measure, is seldom possible. General experience everywhere confirms the statement that any and all conditions that favour the spread of glanders will delay its effective stamping out. It is no answer to the question to say, as has been said, that a man having diseased horses in his stud may be harassed into submission by prosecutions and penalties. This operation of coercion is not brought into action for three weeks after the discovery of the infected centre. What may happen during those three weeks of respite? Numbers of animals may be infected, and, while still incubating the disease, pass from observation and spread infection elsewhere. Would not such a state of things interfere with the effective stamping out of the disease? Against the statement which has recently appeared that "not once in ten years in the experience of any inspector has this been found either a danger or difficulty," I will submit the question, is there an inspector in the country who does not recognise the danger of delay in dealing with infected animals at all times, and the obvious difficulties it entails? If I were permitted an answer, I should say not one—not even the author of the statement himself, who has elsewhere admitted that preventive slaughter is most effective in the stamping out of disease when early carried out.

It now only remains for me to indicate in what way its extermination may be brought about. In doing so it will be understood that I make no distinction between glanders and farcy. For the purpose of this paper they have been regarded as a pathological unit.

All sanitary legislation to be effectve must be based on considerations of the nature of the disease to be overcome—its origin, mode of spread, zoological range, and geographical distribution.

Glanders is a specific contagious affection, for the most part assuming a chronic character, often obscure in its clinical characters, and always fatal. In this latter connection some slight discrepancy and confusion appears to exist in the minds of some, and especially in that of the eminent authority to whom previous reference was made. In a letter to the *Times*, Mr. Hunting distinctly affirms that glanders is "incurable;" and while admitting it to be due to the poison of farcy, assures us that some few cases of the latter "totally recover." It need hardly be urged that if glanders and farcy are one and the same disease, distinguished only by outward manifestations, then it follows that, glanders being incurable, "total recovery" from farcy is logically impossible.

The incubation period of this malady, there is reason to believe, is indefinite. It is perfectly true, as I have repeatedly observed, that manifestations of the disease follow upon inoculation at the expiration of from seven to nine days, but we are at present unable to fix a period to those numerous cases which follow upon the ingestion of the poison, and others which possibly result from direct pulmonary infection.

Recent research has made it clear that glanders owes its origin to a specific virus, the active element of which is a minute organism or microbe, and we owe our acknowledgement to Mr. Sherrington, Professor Superintendent of the Brown Institute, for the development of an important fact in respect to its vitality. Mr. Sherrington has demonstrated by laboratory experiment that the bacilli of glanders may live unharmed in ordinary London water for twenty-six days in the month of August. This is a period of the year when our horses are drawing largely on street troughs for their supply of water, and the fact discovered by Mr. Sherrington shows in the clearest light the danger of drinking-troughs, and the necessity for their daily cleansing so long as glanders prevails.

Mr. Sherrington has also made known another not less valuable piece of information to the the cause of protective medicine, viz. that this same bacillus may be destroyed in three days by exposure to ordinary sunlight.

As to the mode of access, it cannot be said that science has fully determined the channels through which the virus proves effective in the induction of the disease. It is quite certain, however, that it does so when brought into contact with a wounded surface, whether that surface be skin or mucous membrane. Virus swallowed with food and water is unquestionably productive of the disease; but whether this result follows uniformly, or is dependent upon special conditions of the membrane through which it acts, connot be stated. The inhalation of the contagion by healthy animals is an unavoidable result of their cohabitation with diseased ones; but the propagation of the malady in this manner does not present itself as an established truth. Of these several modes of access direct inoculation of the poison by skin wounds is probably the most common. Wisps, brushes, and cloths, used for the purpose of cleaning horses, often serve to convey the poison from the nostrils of the sick to the broken skin of the healthy.

The zoological distribution of glanders among our domesticated animals needs consideration in any future legislation, especially in regard to goats, which are unquestionably receptive of the poison. No less than three instances of these creatures so suffering have been brought to my notice in the course of inquiry into outbreaks of the disease among horses. As goats are frequently kept in large horse establishments in this metropolis and other commercial towns, and allowed to run at large both in stables and the streets, it is most desirable that provision should be made to deal with them as with horses, asses, and mules, to which legislation is at present restricted. The drawings now before me represent the pulmonary and nasal lesions presented in one of the cases referred to. In this instance a herd of milch cows were housed in stables immediately adjoining the infected horses, and infected goats were free to pass from one apartment to the other. The possibilities of such a state of things are serious, and suggest at once the danger of human infection, besides a free distribution of the virus throughout the place, which the severity of the outbreak in question clearly denoted.

The geographical distribution of glanders extends over the whole civilised word. England, however, imports but few horses at present. There is, however, reason to think that ere long a marked increase in this direction will take place, and it will be for this country to guard herself as far as possible in future legislation from the introduction of the disease from foreign countries.

By the courtesy of my colleague, Professor Macqueen,

I am permitted to add to this paper an interesting translation of statistics of glanders in European countries, which have been tabulated by M. Soly and reported in *La Presse Vétérinaire*.

Return of Losses from Glanders.

The following statistics possess great interest just now when glanders is attracting attention in London, and when probably fresh legislation will be attempted.

GERMAN EMPIRE, 3,522,316 horses. Census 1883.

1880	lost	2293	1884	lost	2409	88	lost	1504
81	„	2656	85	„	1706	89	„	1771
82	„	2824	86	„	1524	90	„	1281
83	„	2002	87	„	1498			

PRUSSIAN ARMY, 69,512 horses. Census 1888.

1886	lost	17	1888	lost	3	1890	lost	7
87	„	2	89	„	27			

BAVARIAN ARMY, 10,381 horses. Census 1890.

1890-91, no loss from glanders.

AUSTRIA, 1,463,283 horses in 1880.

1881	lost	593	1884	lost	422	1887	lost	393
82	„	616	85	„	510	88	„	379
83	„	497	86	„	378	89	„	344

HUNGARY, 2,158,870 horses 1880.

1889 lost 815 | 1890 lost 646.

BELGIUM, 271,074 horses. Census 1880.

1880	lost	507	1884	lost	207	1888	lost	197
81	„	481	85	„	168	89	„	158
82	„	366	86	unknown				
83	„	365	87	lost	155			

HOLLAND, 270,456 horses. Census 1882.

1880	lost	80	1884	lost	61	1888	lost	33
81	„	74	85	unknown		89	„	41
82	„	58	86	lost	48			
83	„	55	87	„	47			

DENMARK, 347,561 horses. Census 1881.

1880	lost	59	1884	lost	7	1888	lost	7
81	„	36	85	„	1	89	„	9
82	„	28	86	„	1	90	„	1
83	„	20	87	„	10			

NORWAY AND SWEDEN, 469,619 horses in 1882.

Norway only.

1879-80	lost	1	1883	lost	4	1889	lost	1
81	„	1	84	„	9			
82	„	9	85-8	none				

Sweden only.

1879-80	lost	19	1884	lost	9	1888	lost	3
81	„	19	85	„	7	89	„	5
82	„	252	86	„	3			
83	„	7	87	none				

FRANCE, 2,837,552 horses. Census 1882.

1886	lost	621	1888	lost	580	1890	lost	685
87	„	617	89	„	790	91	„	786

FRENCH ARMY, 100,000 horses. 1882.

Put down in consequence of glanders or farcy.

1879	lost	714	1884	lost	140	1889	lost	97
80	„	303	85	„	161	90-1-2,		
81	„	290	86	„	203	200 or more		
82	„	205	87	„	55	(estimated.)		
83	„	122	88	„	77			

GREAT BRITAIN AND IRELAND, 1,909,200 horses. 1885.

Killed, glanders or farcy.

1880	lost	2110	1885	lost	927	1890	lost	1760
81	„	1720	86	„	1114	of which 782 in		
82	„	1389	87	„	1482	London alone.		
83	„	1244	88	„	1581			
84	„	1027	89	„	2246			

RUSSIA, 21,203,907 horses. Census 1887.

1876-80, 1897 cases of glanders.

1881	lost	1200	1884	lost	1070	1887	lost	1249
82	„	1053	85	„	1314	88	„	1786
83	„	1009	86	„	1600	89	„	2114

In 1891, Berezow says, 1000 cases in the Government of Saratow alone.

SWITZERLAND, 98,363 horses in 1886.

Died or were killed.

1880	lost	39	1885	lost	37	1889	lost	28
81	„	26	86	„	37	90	„	26
82-3	„	26	87	„	23			
83-4	„	31	88	„	40			

ITALY, 660,123 horses in 1882.

1882—122 cases of glanders	1888 — 185 (communes)
83—225 „ „	parishes infected.
87—114 stables infected.	90—131 „ „ „

Sanitary law 28th December, '88. Statistics incomplete.

PORTUGAL.

'90, 39 cases, of which 11 occurred at Lisbon.

ROUMANIA.

'87 lost 155 | '88 lost 203 | '89 lost 182 | '90 lost 152

BULGARIA.

'90, 15 parishes (communes) infected.

The regulations in force in the different countries make the above tables of greater value. Thus it will be noticed that France and England give no compensation, and fail to decrease the outbreaks. The regulations in force in Denmark seem to be very successful.

Germany.—The sanitary police carry out the orders of 1880 and 1881. All horses affected with glanders must be slaughtered by order of the police. The owners of animals slaughtered by order of the police have a right to an indemnity representing three-fourths of the value.

Austria and Hungary.—The law of 1880 prescribes that infected or suspected animals must be "put down." Contact animals may be slaughtered by order of the Local Authority. The State repays the full price of all animals put down which may not be found glandered post-mortem. The provinces have authority to grant some indemnity for animals put down and found glandered post-mortem.

Holland.—The law of 1888 prescribes the slaughter of all animals attacked by glanders. Suspected animals may be slaughtered by order of the Burgomaster. The owner of animals slaughtered has the right to an indemnity equal to the full value if the animals are found healthy, to the half value if the animals are found glandered.

Belgium.—The laws and orders of 1882 and 1889 prescribe that glandered horses must be put down. All horses which have been in contact with glandered horses may be put down by order of the Minister of Interior. The owner of a glandered horse receives from 100f. to 150f. as indemnity. The owner of a suspected animal has the right to one half the value of the subject. Recently the indemnity in suspected cases put down and found not glandered has been increased to four-fifths the value of the animal.

Denmark.—The law of 1857 prescribes the slaughter of

all glandered horses. The State pays one half the value of horses slaughtered and found glandered. Owners of horses found healthy receive compensation equal to full value.

Sweden.—The laws of 1885 and 1887 prescribe that horses attacked by glanders shall be put down, and horses which have been in contact with glandered horses shall be isolated for three months. An indemnity of half the value is awarded the owner of horses slaughtered and found glandered, and another of full value is granted to owners of horses slaughtered and found healthy.

Norway.—Law of 1882, which is similar in conditions to that of Sweden.

France.—The law of 1882 prescribes the slaughter of animals attacked by glanders, but no indemnity is provided in any case.

England.—Laws 1878, 1884, and 1886 familiar.

Russia.—In Russia no law exists concerning glandered horses. Since 1885 some compensation to owners has been granted for glandered horses put down. In some districts glanders is considered non-contagious! Waronzow estimates the real number of glandered horses in European Russia at 90,000, being a trifle more than four per thousand of the whole number; besides, the glandered horses which proceed from Russia and which are slaughtered in Austria and Germany are always numerous. In a single hospital twenty-eight persons died of glanders in seven years.

Switzerland.—Each canton has its own regulations. Nearly all grant some compensation to the owner of horses slaughtered as glandered or suspected of being glandered.

The legislative and administrative requirements necessary to the suppression of glanders are clearly indicated in the foregoing considerations.

The disease is essentially contagious and incurable, and there is therefore no justification of any sort for keeping animals alive when suffering from it. It threatens and destroys human life, and inflicts immense loss on our commercial community. Under these circumstances slaughter of the diseased becomes at once an indispensable and rational means of suppression, and it is hardly necessary to add that to be effective this should be prompt and compulsory.

Our experience of permissive legislation during the past thirty years has been both painful and costly, and in face of the recent success of compulsory measures in stamping out foot-and mouth disease and affecting the almost complete extermination of pleuro-pneumonia, its continuance would be not only useless, but actually mischievous.

The question of compensation naturally arises here, and I think everyone conversant with the working of sanitary measures will regard this as an indispensable adjunct to compulsory slaughter.

The principle of compensation has been recognised and acted upon in dealing with contagious diseases of sheep and cattle, and its application to glanders promises results by no means inferior to those already attained.

It is most desirable in any attempt to stamp out glanders that the sympathy and co-operation of horse-owners should be assured, and this can only be done by a fair and reasonable allowance for the sacrifices they are called upon to make. The relation of our large studs to our army service gives the question an imperial character, and in such light, it appears to me, it should be recognised and treated.

The suppression of the disease would confer benefits upon the State above everyone else, and it is not asking too much of the State to bear the chief burden of the cost.

To what extent compensation should be made is a point upon which there does not appear to be complete agreement. I think, however, that half the value should be allowed to owners for horses found either before or after death to be suffering from the disease, and that full compensation be paid where animals killed on suspicion are afterwards declared to be free from it. A liberal measure of compensation will not only tend to hasten the extinction of the disease, but it will considerably reduce the cost of the machinery necessary to effect it. Among other things, it will encourage early notification and the active co-operation of the public, which are of all other forms of assistance the most desirable in sanitary service. Notification is of the first importance in the work, and should be rendered compulsory both on owners and veterinary surgeons, and penalties should follow conviction in all cases of default.

For the purpose of this undertaking all stables in the metropolitan district, or in such part of it as may be deemed necessary, should be registered and open to inspection at any time the sanitary authority may appoint. It might also be desirable to provide for the registration of all suburban farms, common ground, and open pasture where horses are taken in to agistment, and also for their inspection.

All horses in an infected stud should be branded on the hoof, and none of them should be sold within a certain time after the subsidence of the outbreak without a licence from the sanitary authority. Where horses are sold from recently infected stud the name and address of the purchaser should be lodged with the same authority.

Horse owners should be supplied with a printed statement of the symptoms indicative of glanders and farcy; and for the purposes of notification all horses having a discharge from the nostrils and enlargement of the glands beneath the jaw, or swelling of the legs with boils or sores upon them, should be deemed to be suspicious.

Disinfection of stables, inspection of slaughter-houses, sale yards, and cab ranks, and the prohibition and regulation of movement of suspected animals are matters to which attention would be given.

Having shown the necessity for suppression of this disease, and indicated generally the sanitary measures by which it may be effected, it remains to consider the possible cost of the undertaking, and the body into whose hands it may be confided.

Of course anything that may be said on the question of cost must be accepted as a mere estimate. This, I think, may be based indirectly on the returns for the year 1891, when 2435 cases were recorded. I think upon this we should be safe in saying that under the searching precautions I have laid down 4000 cases of glanders and farcy would be notified or brought to light during the first year. Assuming the average value per head of this number to be £25, and compensation was allowed to the extent of one half the amount, we should incur an outlay of £50,000. It may be computed that 1000 horses slaughtered on suspicion would be found on *post-mortem* examination to be free from the disease. Allowing for these an average of £25 per head would bring the outlay for compensation to £75,000. Add to this £20,000 for expenses, and we get a total expenditure for the first year of £95,000.

With the removal of such a number of affected animals and the exercise of the sanitary measures prescribed, a great diminution in the prevalence of the disease might reasonably be expected; such a reduction. I think, as would render an expenditure of £30,000 equal to the requirements of the sanitary department for the second year. If for the third year we allow £20,000, and £20,000 for the subsequent year, the disease would then in all probability have been stamped out for the sum of £165,000.

An important discovery, however, has recently been announced, which, if possessing the virtues with which it is credited, bids fair to reduce this last amount by £25,000 to £30,000. In a letter to the *Times* of August 24th Dr. Fleming drew attention to a product of the virus of glanders termed "mallein." This agent ,we are told on the au

thority of M. Nocard of Alfort, Degive of Brussels, and others, is "a sure test for the existence of glanders in suspected cases." "A minute quantity," says Dr. Fleming "injected beneath the skin of a healthy horse produces very little if any effect; while the same amount introduced in the same matter into one that is infected gives rise to intense fever and other unmistakable symptoms. Again and again this substance has shown horses to be diseased when every other means had failed. Armed with such an agent as this is said to be the diagnosis of glanders will be made comparatively easy and certain, and the sacrifice of horses for diagnostic purposes may be altogether dispensed with. As I have already observed, this will effect a saving of between £25,000 and £30,000."

As to the authority into whose hands the adminstration of the necessary means of suppression should be placed there can be no room for discussion. Local authorities with their permisive measures and disjointed action have proved a costly failure. For this, however, they are not to blame. The task imposed upon them was an impossible one from the first, and no one knowing anything of human nature and sanitary administration could seriously believe that the former had lost all sense of the burden of local taxation, or that the latter was dearer to the national heart than gold. Local authorities have played the part of an innocent buffer between a neglected agriculture and the Chancellor of the Exchequer. In that capacity they have won golden opinions from ministers of all political creeds, but they have utterly failed as a part of the veterinary sanitary service of the country.

Our recent experience of sanitary administration in connection with pleuro-pneumonia and foot-and-mouth disease clearly points to the Agricultural Department as the most competent to undertake the suppression of glanders. It would, however, be most undesirable to make any attempt in this direction until the law has been altered to meet the requirements of the case.

Table showing the Number of Years each County has suffered from the Disease from 1886 *to* 1890, *and the Number of Outbreaks in each County for that Period.*

County.	Years.	Outbreaks.	County.	Years.	Outbreaks
Bedford	4	12	Lincoln	4	8
Berks	3	7	Middlesex	5	4517
Bucks	4	8	Monmouth	1	2
Cambridge	4	7	Norfolk	0	0
Chester	4	7	Northampton	1	1
Cornwall	3	6	Northmbrland	0	0
Cumberland	0	0	Nottingham	4	5
Derby	3	7	Oxford	0	0
Devon	1	2	Salop	0	0
Dorset	0	0	Somerset	3	4
Durham	1	1	Stafford	3	4
Essex	5	89	Suffolk	1	1
Gloucester	1	3	Surrey	5	67
Hants	5	20	Sussex	4	19
Hereford	0	0	Warwick	4	28
Hertford	5	38	Westmoreland	0	0
Huntington	1	1	Wilts	2	2
Kent	5	49	Worcester	4	6
Lancaster	5	20	York	5	15
Leicester	1	1			

Fox-Hunting.—Lord Yarborough states that there are 330 packs of hounds in England, Scotland, and Ireland. Assuming the cost of fox-hounds to be £650 for one day per week for the year, stag-hounds to cost £550, and harriers £200, keeping up hounds in the United Kingdom causes the expenditure of £414,850; and, estimating 100 men hunting with each pack, each man having three horses, that means that 99,000 horses are engaged. Putting the cost of each horse at 15s. per week, this comes to considerably over £3,500,000, independently of the expenses of carriage-horses, cover-hacks, travelling expenses, etc.

VETERINARY SOCIETIES.

THE NATIONAL VETERINARY ASSOCIATION.

THE CASTRATION OF THE DOMESTIC ANIMALS.

Extracts from the paper by Professor Dewar.

Continued.

But now that our colt is secured, how are we going to operate?

We will first consider the operation by the actual cautery. The scrotum is still sometimes opened by a hot, sharp-edged firing-iron; but we are glad to think that this painful and barbarous method is gradually being given up, as no advantage is to be gained by it. But I will allow a very successful operator to describe shortly his method.

Mr. James G. Tait, Forres, writes:—"I expose the testicle with the knife, put a steel clam on to the cord, remove the testicle with the knife, and then sear up all the vascular portion with the hot iron. The operation does not hinder long. I have operated on five in an hour, which means pretty hard work physically. I operated on a twelve-year-old horse on the 18th June, 1892, in the same manner as on the colts, and he has got on well. . . . I have operated on 200 this season, and all have done well. As to the colts swelling, I may here mention that I had not to go a second visit to any this season. Some of them I believe swelled a little at the point of the sheath, generally about the third day, remaining for a few days, but the results have been all I could desire. I have occasionally seen an abscess form in the groin a few weeks after castration, due, in my opinion to the outer wounds healing too quickly.

Never had a case of scirrhous cord.

In cases of hernia, which are not very common, I castrate by the covered operation; but I have met with two cases where, having no suspicion of hernia, the intestines appeared while I was operating. I got some one to hold back the bowel, finished the operation, searing the end of the cord with the iron, and then put on a caustic clam. Both colts did well.

I often meet with a descent of omentum, and have had five cases this season. When operating I never minded until I had finished, then cut off what was outside, and stitched up the wound. It often appears the day after the animal is castrated hanging down to the hocks, and nearly as thick as a man's wrist. I cut it off as high as possible, and they always do well.

I think I have had five cases of peritonitis in seventeen years, due to the colts being put out in biting east winds, a day or two after the operation. These are all the deaths I have had, or about one in five hundred.

Have never met with hæmorrhage.

I have operated on about a dozen colts by torsion; all the rest with the iron. I tried the colts in pairs at the same farms, both getting the same treatment, and I did not have nearly the same satisfaction with torsion, the torsion colts swelling much more than the others."

We must say that our results with the cautery have not equalled those of Mr. Tait, only our experience with it corresponds pretty much with his experience of torsion. We operated much in the same way, except that we divided the cord with a hot firing iron; and although we had no hæmorrhage, we have seen it resulting from three to six hours after the operation, and believe it to be difficult to stop. Certainly we have more swelling

than after torsion, and have heard from many clients of the great amount of swelling they used to have in their colts after the hot iron, sometimes extending up to the fore legs.

Castration by ligature we have very little experience of, but we cannot see any valid reason why it should not be as successful as any other. Whatever the cause, the system seems to have been given up for other and more satisfactory methods. But we think the manner of performing the operation was not the best calculated to obtain satisfactory results. All the vascular portion of the cord was usually ligatured; and it was held as an axiom by the operator that the ends of the ligature should be left hanging out of the wound. No better system could be devised for the purpose of conveying infection up the inguinal canal. Nothing was then known of antiseptic surgery; no attempt was made to have an aseptic ligature. The ligature—generally an ordinary hempen string—being constantly moist with the effusion from the congested cord, served as a drain to introduce infectious germs into the interior of the wound; while if the ligature was cut off short the wound was apt to heal externally, leaving the ligature and ligatured portion of the cord to suppurate out. But if the operation were properly performed, using antiseptic precautions while operating, and securing the artery alone with prepared catgut or other animal tissue, we cannot see why the results should not be as satisfactory as by any other method.

Castration by the clam is a well-known method, and, as far as the immediate results are concerned, a very safe one. At one time almost universally practised in France, it was introduced to this country, where it became nearly as well known. The clams usually employed were at first made of elderwood, the pith being cleared out and the hollow filled with some caustic composition, generally corrosive sublimate. Now they are made of various kinds of wood, from four to six inches in length between the fastenings, and one and a quarter inches in diameter, more or less, according to the size and age of the animal to be operated on. A groove is generally cut from end to end for holding any desired application, and a circular groove round the clam near each end for holding the string that ties the clam together. The method we believe to be usually employed in this country is a modification of the covered operation. The colt is cast in the usual way, an incision made through the scrotum, and the testicle exposed. A sharp hook is then inserted through the fibrous tunic, from within outwards, at the anterior angle of the incision, and given to an assistant to hold, while the operator adjusts the cord to the required length and puts on the clam, from before backwards, including the fibrous tunic, along with the cord in the clam. He then seizes the posterior ends of the clam, behind the circular groove made for the cord that fastens the clam together, with a strong pincers, and grips the clam as hard as he can, while the assistsnt, releasing his hook, ties the clam as tightly as possible. Each testicle is secured in the same way. Some operators leave the testicles hanging until the clams are taken off; others cut them off just below the clam. Except for appearance sake and for the size of the testicles in aged animals, there is no great advantage gained by cutting off the testicles, as the strain does not come on the spermatic cord when castrated in this way, but on the fibrous tunic. The clams are left on for forty-eight or seventy-two hours, and in aged animals even longer, and when removed the testicles are cut away, leaving some portion of dead tissue at the ends of the cords.

We have also operated by the uncovered operation—compressing only the bare cord without the fibrous tunic, and cutting away the testicle as soon as the clam is secured. The advantages of this operation are that a much lighter clam can be used, and it can be removed in twenty-four hours. But its disadvantages are great; it leaves an opening communicating with the peritoneum. The strain is nearly all on the cord, which sometimes, when relaxed, hangs down away from the wound in the scrotum; and the clam may not keep its position, as we have found it with the ends reversed when we proceeded to take it off.

The covered operation is performed when scrotal hernia is present or suspected. The incision is only carried through the skin and dartos, the bowel being first forced back through the inguinal canal. The dartos is separated from the fibrous tissue as far up as possible with the fingers, and the clam put on to the cord above the testicle and epididymis, without opening the vaginal sack or exposing the testicle. A longer, stronger clam is required than in an ordinary case; and it is left on for eight or ten days, or even longer, if the operator is not satisfied that adhesion has taken place. In fact, some leave it to slough off, but we do not think that necessary. Mr. Crabb, New Aberdour, writes:—"I never use a knife, but use a long steel clam—not too heavy. I push back the bowel into the abdomen, fix the clam over everything as close to the external ring as possible, and leave it till the whole mass slough away." We scarcely think such a strong measure is required; in fact, it is by no means necessary to the success of the covered operation that the vaginal sack be not opened. It can easily be opened without separating the edges of the fibrous tunic from the testicle and cord, and the operator can then be absolutely certain that he is fixing his clam above the epididymis. The operation is more satisfactory, as safe, and the results equally so.

In using the caustic clam, it should be observed that a semicircular groove in the clam is very little use in retaining the caustic; and, unless the groove be rectangular, the composition is all forced out when the clam is tightened.

The operation by torsion, although known in this country since 1834, does not seem to have met with very general adoption until it was recommended and popularised by Professor Williams. With the colt secured in the usual way, we seize the testicle with the left hand, keeping the skin over it as tense as possible, and, with a good long sweep of the knife, expose the testicle, catching it with the right hand when it appears. It is then held for a few seconds until the colt ceases struggling, and the cremaster becomes relaxed, when the cord is pulled down and the torsion forceps put on close to the globus minor, but as far up the cord as to be near the top of the convolutions of the spermatic artery. We then put the serrated steel clam on above it, close to the forceps posteriorly, but fully half an inch from it at the vascular part. We prefer having an assistant to hold the clam, allowing us to have both hands to turn the torsion forceps. If the operator observes to put the greatest force to the posterior end of his forceps, the first twist will separate the attachment of the fibrous tunic and the tunica albuginea, leaving only the vascular portion to be twisted. The forceps are turned rapidly round until the testicle comes away. The clam is then gradually slackened the operator opening and closing it a little to make sure that there is not to be any hæmorrhage. We have often had to take up the divided end of the cord, which we do with dressing forceps, and twist an additional portion. When the operator is satisfied that there is no risk of hæmorrhage, the cord is let slip.

Many of the most successful operators apply the steel clam first, divide the non-vascular portion with the knife, and apply the forceps as close to the clam as possible, twisting off the testicle, and allowing the cord to slip back at once, with, it is said, thoroughly satisfactory results. We certainly prefer to have a short length of the cord to twist, and have never seen any evil result from leaving a small portion of cord thoroughly crushed.

We have never met with hæmorrhage after the colt

was on his feet, but have had two cases in which we had to catch hold of cord a second time and re-twist it. The last one, which occurred this season, we will shortly describe. While removing the second testicle, we observed the blood welling up from the first wound, running along the groin and over the flank, the colt being on his back. As soon as the second testicle was removed, we scooped all the blood we could out of the first wound—it can never be all got out, as it flows about as fast as we remove it—and proceeded to secure the end of the cord. This was done by seizing the fibrous tunic at the posterior angle of the incision, catching it again with forceps inside and a little further up, where the reflexion of the tunica vaginalis is attached to it, and so on, hold above hold, as a sailor climbs a rope, until the end of the cord appeared from amongst the blood, when it was caught, fixed in the clam, the forceps applied, and it re-twisted. The colt was let up, and there was no more trouble. It will be observed that the cord can always be got at in this way, if done gently; but if done roughly, and the cremaster called into action, its force is sufficient to rupture the reflexion of the tunica vaginalis between the fibrous tunic and the spermatic cord.

We have operated by torsion more or less for fifteen years; for the last ten years almost exclusively, and for normal colts we prefer it to any other method.

Castration by the ecraseur is a very simple process, and although not very common in the North, is undoubtedly gaining ground. Not having sufficient confidence in its stopping the hæmorrhage, we have never used it but in operating in the standing position.

Mr. T. Mellis, Inverurie, referring to the ecraseur, writes:—"I have now operated on several hundreds in this way, and have not had a death. Some six or eight have had to be stuffed up for hæmorrhage, but did well after. Never had a case of scirrhous cord, tetanus, or peritonitis."

Mr. Mellis removes the testicles singly, but we understand some operators include them both in the ecraseur at once.

In operating in the standing position we use the ecraseur. We operate in the stall, or get the colt into a corner, put a twitch on, and, with an assistant at the head, and another at the side with a hold at the tail, we approach the colt at the near quarter, grasping the testicle from before with the left hand—the one that seems the worst to get a hold of first—we carry the knife in the right through between the hind legs, and with one cut of the knife from before backwards liberate the testicle. We then put on the ecraseur, from the flank, included the whole circumference of the fibrous tunic in the chain in the belief that owing to the toughness of the tunic a greater length of the artery will be crushed, and after the chain gets tight we screw it off slowly.

When we attempted this method first we got an assistant to hold up the near fore foot, but we soon learned that the greatest risk was from the colt throwing himself down, and that the more he was held the readier he was to do this.

An operator who advertises largely in the North carries an iron spike with him, with a movable ring in the top of it. He chooses a suitable corner, drives his spike into the wall at a height of from four to five feet from the ground, and has the animal's hind quarters in the corner. He uses a strong rope with a ring at one end of it, and pulls his rope through the ring in the fixed spike from above downwards. He also uses a loop of thinner rope with a knot in the middle, passes one end of the loop over the neck in the position of the collar, the other he passes between the fore legs and draws his strong rope through it, using it as a martingale; he then passes his strong rope up the near side and through the ring on the other end, thus encircling the chest, bringing the free end towards himself over the animal's back and gives it to an assistant to hold. After all they will sometimes throw themselves down.

We confess that we are not greatly enamoured with this method. As far as our experience goes, having done about thirty in this way, there is not much risk to the operator if a moderately active man. But we are inclined to think that there is a good deal of risk to the colt. After casting and securing them with back rope, &c., or knowing of its being done in thousands without any accident, we naturally look upon the risk of injury from the casting as being very small indeed, in fact, practically nil with healthy colts if the operator knows his work. We have known of two colts each getting a fractured femur, and a third that got a fracture of the ilium, but not a single fractured or injured back. Two of these were being operated on by empirics, the other by a veterinary surgeon with a large experience, who fortunately warned the owner that there was a risk in casting his colt, as he had been standing in the house under treatment for luxation of the patella.

In the standing position we find the older animals most easily handled. A good few of the yearling colts threw themselves violently down while we were operating, and, in our opinion, there is considerable risk in that. The operator is compelled to let his ecraseur go, and the colt may fall on it in such a way as to send the end of it up into his groin, or so as to give a considerable wrench or strain to the spermatic cord. Fortunately we have escaped that as yet, but there is too much left to chance. They often bleed a little after the operation, but it soon stops, and we have never had serious hæmorrhage, except in one case—that of a three-year-old donkey that bled very considerably. We did nothing to stop it, and it recovered all right. We don't know whether the histological anatomist can make out any difference between the structure of the spermatic artery in the donkey and in the colt, but from former experience we are inclined to think that donkeys are more liable to hæmorrhage after operations than colts. Perhaps it may be due to their lymphatic temperament and want of tone.

The castration of cryptorchids deserves an article to itself, instead of being tacked on to the end of a paper already much too long, so we must endeavour to treat it as briefly as possible. Rigs or cryptorchids are animals in which one or both of the testicles are not only not to be found in the scrotum, but are contained within the abdomen. Animals in which the testicles are irregularly situated in the inguinal canal or somewhere outside the abdominal cavity, although not contained in the scrotum we do not consider true rigs.

When castrating yearlings we often meet with colts in which only one testicle can be felt. It is our invariable rule to leave these colts untouched, and, if early in the season, we return and re-examine them before the middle of June. If the missing testicle can then be felt both are removed, if not, the colt is left until the late autumn or early winter, when it is cast and castrated. If only one testicle is got we think there is much more likelihood of the missing one descending into the scrotum when its fellow is removed. All the nervous force and energy of the generative faculties are now directed to the missing testicle, which has much more chance to develop and grow. And even if it do not descend into the scrotum it must grow faster, and is much more easily found in the abdominal cavity than when small and undeveloped. If the testicle is found to have descended by the following spring, when the colt is two years old, it is easily managed. And if it is not yet to be found, and the colt giving no trouble amongst other horses, we leave him until such time as he gives convincing evidence of his being possessed of the sexual propensities. But if he is already troublesome we at once proceed to operate on our rig. We don't think that over ten per cent. of the colts rising one year old, in which one testicle cannot be found, will

ultimately be found to be rigs. Many are the colts we have operated on reported to be rigs, but in which we found the missing testicle without entering the abdominal cavity. Before operating it is advisable to put the colt on soft food for a day, and give very little of it, so as to have the bowels as empty as possible; and we have found it to be good practice to give an enema of warm water to empty the rectum before throwing the animal. The method we have found best adapted for securing the colt is that described by Mr. Donald, of Wigton, in the December number of *The Journal of Comparative Pathology and Therapeutics* for 1888.

As we have the notes of our first case of rig castration by us, we have not materially altered in our method, we will give them here as condensed as possible. "April 16th, 1888. Black two-year old rig colt. Washed out prepuce and penis. " . . . . Took a hold of anterior part of prepuce with left hand and made an incision five or six inches long from before backwards with an ordinary castrating knife, a little farther forward than usual and about an inch to the left (as the colt lay on his back) of the median raphe. Another cut took us through the dartos; then with a large blunt seton needle separated the tissues straight in the direction of the internal inguinal ring. Used our fingers very little except to feel two or three times how we were progressing. Soon reached the ring, cleared the tissues, and at upper and outer part sent the needle through with a distinct crack. Put through two fingers and felt for the testicle, but could not feel it until we felt for the vas deferens, got it at once and managed to pull it through the opening with the two fingers, so as to get a hold of it with the finger and thumb. Then caught it with a dressing forceps, and got a better, shorter hold with the fingers. Found the opening small enough for the testicle, and the colt struggled when it was compressed in the opening, but managed to pull it slowly through without enlarging the wound in the peritoneum. Found no adhesions. Put on ecraseur as high up as possible, screwed it slowly up and removed it. Used mercuric chloride solution one fifth per cent., and put carbolic oil, five per cent., into the wound immediately before letting him up. Was not down over twenty minutes. Testicle weighed four ounces five drachms. Temperature on being put in stable at noon 100 F., pulse 38; at 7-30 p.m., temperature 102 F., pulse 42."

That was the highest temperature recorded, although the pulse rose to 50 the following morning—the highest it reached. His wound was dressed daily; he made a rapid recovery, and in ten days was practically healed.

The main things to be observed are—to have the colts in as healthy and hardy a condition for the operation as possible; to operate under strict antiseptic precautions is a safe and simple, if sometimes unnecessary, method; to have them under good hygienic conditions; and to see that they are comfortably treated and have plenty of active exercise afterwards.

No operator will have good results if the colts are standing in dirty sheds, or over several weeks' accumulation of their own droppings. We never yet had a colt that did not swell after the operation if kept standing in a byre alongside cattle, or even in a stable with a large number of other horses.

Given a couple of healthy colts running together, with a clean, airy shed, not in the way of being occupied by animals, to house them in at night, and we would almost guarantee that the wounds would be thoroughly healed without any swelling within eight days. And is this not what we are all striving for: safety during the operation and a rapid recovery? Once the wounds are healed there is no more risk of scirrhous cord, tetanus, or any of the other ills they are liable to. The worst feature of the operation by the clam is the length of time the wounds remain open, increasing the time the colts are exposed to risk from the operation. And the system under which the wounds will heal most rapidly, without increasing the risk to the animal in the first instance, is undoubtedly the best system of operating.

EXTRACTS AND NOTES.

EDINBURGH UNIVERSITY AND THE NEW MEDICAL ORDINANCES.

The year 1892 is an epoch-making year in the history of the Scottish Universities. The ordinances of the Universities Commission, which come into force with the beginning of the ensuing session, will establish a new order of things.

The new regulations have in a considerable measure recast the existing arrangements for granting degrees in medicine. The general effect of them will be to raise the standard of attainment necessary to qualify for graduation. The institution of the degree of B. Ch. (Bachelor of Surgery), which is to take the place of the old C.M. degree, and the raising of the old C.M. or Master of Surgery degree to a standard which will place it on a similar footing to the M.D. degree, is no doubt an important change.

Another change of some importance is the extension of the medical curriculum to five years—the last year being given to clinical study—instead of four as formerly, although under the old system there were many students who took five years to complete their course, and many others who took more than five years, and never became doctors after all. But so far as other changes in the medical curriculum are concerned, they are for the most part, so far as Edinburgh is concerned, changes in detail. The arrangements for the medical preliminary are simplified, and no additional examination is required of the intending M.D. The attendance on the University clases to qualify for the degrees of M.B. and B. Ch. is very much the same as formerly, with these exceptions, that a two-and-a-half months' course of physical science has been added to the curriculum, that the course of practical chemistry is rather shortened, and that two five months' courses of practical anatomy will in future be required instead of one. Outside the actual class work, however, several modifications have been made in the student's curriculum which will have the effect of considerably "stiffening" his work. In the future he will have to devote at least three years to the medical and surgical practice of the Infirmary, instead of two as hitherto. Three months have been added to the courses in clinical medicine and clinical surgery. The requirements as to instruction in practical pharmacy are simplified, but more will be expected of the student with regard to out practice work, particularly in the direction of *post-mortems*, fevers, diseases of children, ophthalmology, and so forth. A greater amount of experience in practical midwifery work will be required of him. He must have attended a course of

instruction in mental diseases, and must produce evidence of practical proficiency in vaccination. Further. it will no longer be enough that he can produce certificates showing that he has given regular attendance at his classes. His certificates must bear in future that he has also duly performed the work of his classes. The addition of a year to the curriculum has necessitated the adjustment of the regulations recognising attendance at other medical schools, but these do not tend in the direction of slackening the hold of the University upon its students, and two of the five years of medical study must be spent in the University. There are some changes in the order in which the subjects of study are to be taken in the professional examinations, and the student will no doubt adjust his course to suit these changes, but they do not call for notice here. As in arts and science, of course, students who have already commenced their medical studies will be able to proceed to graduation on the old lines.

The general regulations for granting the degree of M.D. are much the same as those formerly in force. In future, however, the candidate for the degree will not only have to submit a thesis embodying the result of original work, but will also have to pass an examination in clinical medicine, and in such of its special departments as may be determined. The period of probation, however, is restricted to one year after taking the M.B degree, instead of two years as formerly, in cases where the candidate has been engaged in the medical wards of the hospital, or in conducting research work, or in the naval or military medical service.—*The Scotsman.*

CUMBERLAND SHORTHORNS FOR DALMENY.

Lord Rosebery, who is presently building up a grand herd of polled Angus and shorthorn cattle at Dalmeny Home Farm, recently decided to make an important addition to the stock on this model farm by the purchase of a lot of the very best shorthorn cows in Cumberland. Cumberland, rightly or wrongly, has been credited with purveying most of the pleuro which lurked so long in the Edinburgh dairies; and by way of guarding against any possible danger from this cause, Lord Rosebery entrusted the selecting of these cows to Mr. Henry Thompson, M.R.C.V.S., Aspatria, who holds a prominent position in the North of England as a veterinary expert. After careful examination, Mr. Thompson fixed on the well-known breeding herd of the Messrs. Mann, Aigle Gill, Allonby, as the one from which the cows should be selected, and the purchase was completed on Saturday last. The cows —six in number—are all grand specimens of the 'red, white, and roans,' one, a particularly massive cow, being a pure white, two being red, and three being rich roans. They are mostly all sired by Wild Prince, 48,956, and one of them is directly descended from the 4000-guinea bull Duke of York 9th. They are all in calf to the Aigle Gill stock-bull Bassenthwaite Butterfly. It will thus be seen that the cows selected for the Dalmeny herd are all of the very best breeding and the very highest individual merit. Needless to say the price paid for them was a high one, but it was not higher than was fully warranted by the outstanding merit of the animals.—*North British Agriculturist.*

THE ABDUCTOR AND ADDUCTOR FIBRES OF THE RECURRENT LARYNGEAL NERVE.

The results of an experimental investigation into the functions of the recurrent laryngeal nerve were recently communicated to the Royal Society by Dr. Risien Russell. The investigation was undertaken with the view of discovering whether it was possible to separate the adductor fibres from the abductor fibres of this nerve. It has been long recognised that in organic and progressive affections of the nerve the abductor fibres are likely to suffer sooner than the adductor fibres, but the reason of this is not at all clear. It was suggested by Sir Morel Mackenzie that possibly the abductor fibres were more superficially situated than the adductor, and that this would account for their earlier affection in cases of tumour and of pressure generally from outside. Dr. Risien Russell's experiments were carried out on dogs, the individual bundles of which the nerves were composed being separated and stimulated electrically. The relative irritability of the different bundles was also observed and the bundles were traced by dissection to their peripheral distribution. The abductor and adductor muscles were also subjected to direct observation when excited to action after dissection, and experiments and observations were made on the degenerations following the division of different bundles of nerve fibres. The results of these different investigations show that the abductor and adductor fibres in the recurrent laryngeal nerve are collected into several separate bundles, each preserving an independent course throughout the nerve trunk to its termination in the muscle or muscles which it supplies. It was also found that whereas in the adult animal simultaneous excitation of all the nerve fibres in the recurrent laryngeal nerve results in adduction of the vocal cord on the same side, in the young animal the opposite effect—viz., abduction—is that produced by an exactly similar procedure. When the abductor and adductor fibres are exposed to the air the abductor nerves are found to lose their power of electrical excitability much sooner than the adductors, and this is true of both young and adult animals, although in the former the abductor fibres retain their excitability longer. It was, further, found possible to separate the adductor fibres from the abductor through the whole length of the recurrent laryngeal nerve to their termination in the muscles, and also to so accurately separate the two sets of fibres as to be able to produce abduction or adduction, as the case might be, without evoking any contraction in the muscles of opposite function. The complete separation of the two functions was also shown by the degeneration of the muscles related to one function which followed the division of the corresponding nerve fibres, while the muscles subserving the other function remained unaffected. The greater liability of the abductor fibres to degeneration is very curious, and no explanation of the phenomenon is forthcoming. Sir M. Mackenzie's

theory does not find any support from the investigation under discussion—in fact, it is held to be disproved. The fact that in the young dog the abductor influence is found to predominate makes an explanation even more difficult, unless Dr. R. Russell's view is accepted that the greater power of adduction in the adult is related to the increased power of phonation, while in the young animal phonation is imperfectly developed.

REMARKS ON THE TREATMENT OF MYXŒDEMA WITH THYROID JUICE.

By G. R. Murray, B.A., M.B.Cantab., M.R.C.P. Lond.

Prof. Victor Horsley has so conclusively shown by his own original work and by the experimental and clinical evidence brought forward in a recent paper that myxœdema is due to the loss of function of the thyroid gland that further evidence in support of this view may seem scarcely to be necessary.

In health the thyroid gland plays an important part in keeping the blood in a normal condition and in maintaining the natural metabolism of the tissues. This is shown by the changes which take place when it is lost and myxœdema comes on. This function of the thyroid gland is probably carried on to a considerable extent by means of its secretion, which is carried into the blood.

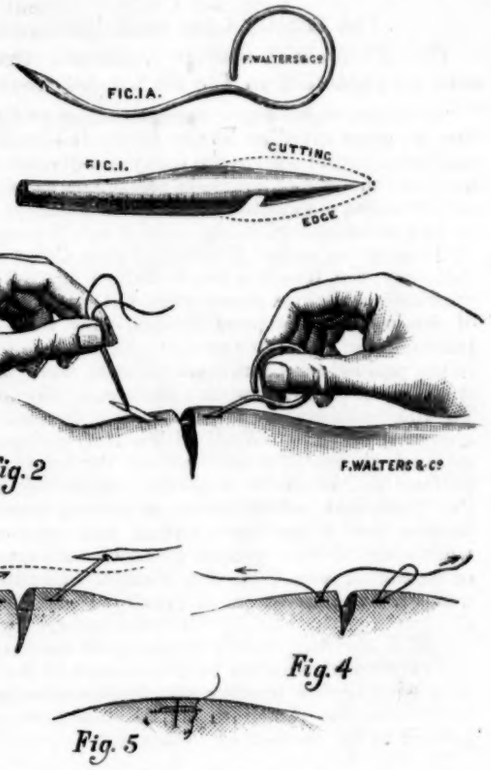
If this really be so, we ought to be able in a case of myxœdema to remove those symptoms which are due to the loss of this secretion only, by introducing the secretion from a healthy thyroid gland into the body of the patient in such a way that it can be slowly absorbed by the lymphatics and carried into the circulation as in health.

In the case of animals, G. Vassale and E. Gley have both shown that injections of thyroid extract remove the acute symptoms which follow thyroidectomy in dogs. Brown-Sequard and d'Arsonval, reasoning from these results, suggested last year that injections of thyroid extract would do good in myxœdema. Previously to this, however, I had tried the effect of injections of an extract of the thyroid gland of a sheep in the well-marked case of myxœdema with such satisfactory results that other cases have been treated in the same way. For the injections an extract of the thyroid gland of a sheep has been prepared freshly for me each week by Messrs. Brady and Martin, of Newcastle, in the following manner: The thyroid glands are removed from several sheep just after they have been killed. Each lobe is minced and then bruised in a mortar. For each lobe employed 1 c.c. of glycerine and 1 c.c. of a 0.5 per cent. solution of carbolic acid in boiled distilled water is added. The mixture is allowed to stand for twelve hours, and then squeezed through a cloth in a press so as to obtain as much liquid as possible from the mixture.

As a rule, *m*xxv of the extract have been injected with antiseptic precautions beneath the skin of the interscapular region once a week. In some cases it may be better to give a smaller injection of *m*x to *m*xv more frequently. The injection is given slowly, so that five minutes are occupied in injecting *m*xxv. This is advisable, as occasionally some peculiar symptoms have immediately followed a rapid injection. Four cases are related, bearing out the general statements. — *British Medical Journal.*

COMBINED SUTURE-NEEDLE & HOLDER.

The illustrations show exactly what this instrument is and how it is used. It is made by Messrs. Walters & Co., 29 Moorgate Street, E.C., who may be complimented on the material and finish.



We have been unable as yet to try the needle and our only fear would be that through the thick hides of some of our patients it might not be easy to draw the thread. A very fine suture is apt to "cut out" and a thick one does not follow the needle easily. Perhaps a little more width on the needle just behind the eye would obviate this difficulty—if it exists.

PROSECUTION BY R.C.V.S.

R.C.V.S. v. Biles.

At the Lambeth Police Court on Wednesday, the 28th September, 1892, W. P. Biles of 5 Elliott Road, Vassall Road, North Brixton, was summoned for an infringement of the 17th Section of the Veterinary Surgeons' Act 1881. Mr. Colam, Barrister, prosecuted for the College and the defendant appeared in person. Evidence was given by Mr. Davis, clerk to Mr. Thatcher, that defendant had up on his premises "W. P. Biles, Veterinary Farrier," and that he also had on his bill-heads the words "W. P. Biles, Veterinary and Farrier," and also refers to fever and other drinks and stated that dogs were attended to etc. Mr. Colam informed the Magistrate that this was a very bad case and pressed for a heavy penalty. The defendant contended that what he had done was in ignorance and that on receiving a caution he had taken down his boards and had also had the words on his lamp painted out but in cleaning it the paint had been washed

off; he further contended that he did not practice veterinary surgery, and stated that all this kind of work was sent to Mr. Tnomas Sangster and attended to by him. The Magistrate informed him that this only aggravated the case and convicted him of the offence, and fined him £10 and £3 10s. costs.

The Cruelty Case at Maidenhead.

The Maidenhead Courier comments thus on the case we published in *The Record* last week :—

"Doctors, we all know, agree to differ, and that beside the two great divisions of the profession—the allopathic and homœpathic—there are many sub-divisions all differing as to the proper course of treatment to be adopted in various cases. Veterinary surgeons I always looked upon as a more united body, but it would seem from the evidence given at the Borough Police Court on Monday that they, too, live in a house divided against itself. The conflicting opinions given were not merely the opinions of obscure country practitioners, they were the settled judgments of the life's study of some of the leading men in the profession. The main point at issue was whether it was cruel or not to work a horse suffering from canker. To the ordinary lay mind it certainly seems an act of cruelty to work an animal with a raw surface on its foot exposed to the dirt and grit of the roads, but several professional witnesses contended that work was part of the treatment, while others as stoutly prescribed rest. Several side issues arose out of this main one, such as what constituted a proper protective shoe, and whether or no canker was a curable disease, but the main issue was still the question of cruelty or no cruelty. The Chairman of the Bench, himself a veterinary surgeon of no mean standing, evidently declined the invidious task of throwing his opinion into one scale or the other, and thus guiding his brother magistrates to a decision, and in the end the Bench wisely dismissed the case on the ground of the conflict of evidence."

Border Counties V.M.S.

The next meeting of the above Society will be held at the Bush Hotel, Carlisle, on the 14th of October, when R. Rutherford, Esq., of Edinboro' will read a paper on "Bowel Disease in Horses."

J. Armstrong, *Hon. Sec.*

CORRESPONDENCE.

REGISTRATION OF STUDENTS.

Sir,

I am very glad to see the question of Registration of Veterinary Students brought forward in your last issue. My ideas on the subject are quite in accordance with those expressed by "M.J.B." in his communication. Students are registered both by the Medical Council and the Pharmaceutical Society. Why should the veterinary student be left out in the cold? Registration would give him a certain *locus standi* which he does not now possess, and perhaps do something to limit such attempts at snubbing from Members of Council and Principals of Colleges as took place during the last College Session. I certainly think that in view of the fact that the student of to-day will be the veterinary surgeon of the future, he is at least worthy of such slight official recognition as would be conferred upon him by Registration.—I am, sir, &c.,

A Late Student.

October 3rd, 1892.

CASTRATION.

Sir,

I should like to make a few remarks on the interesting description given by "Country Vet." in last week's *Record* concerning castration standing. He evidently has the operation safe at last, but from his remarks I gather he has lost cases which of course cannot always be avoided. I use two clams prepared in a manner similar to that advised by "Country Vet." and operate in recumbent posture on horses of all ages and never lost a case in my life, but as the standing posture is all the talk just now I feel almost persuaded to try it, only I shall use two clams instead of one as he recommends. "Country Vet." I think is wrong in attributing the swollen cord to the constricted orifice. I have had this unpleasant occurrence once only and am of opinion it is entirely due to the clams being too low down, the enlarged mass was removed with the hot iron which I consider far superior to ligature, and the case did well.

To avoid this complication the operator may tell by the tightness of the cord where to place the clam, if the cord is very slack the clams may be two inches up the cord, but if tight in the usual place immediately above the epididymus.—Yours.

M.R.C.V.S.

CARBOLIC AND GLYCERINE IN GLANDERS.

Sir,

It may not be out of place now that glanders is occupying a prominent position in both the public and the professional minds, to relate an experience (perhaps of no value) obtained many years ago in an attempt to treat glanders and farcy.

The quotation from *The British Medical Journal* in your issue of September 17th, relative to the subcutaneous injection of creasote oil by M. M. Claudius Nourry and C. Michel, led me to look up my notes of the matter which unfortunately are very scanty.

Two cab horses, one with glanders the other with farcy, were treated for three weeks, intravenously with pure carbolic acid dissolved in pure glycerine; 3drs twice a day at first, but after the first week once a day, was the quantity of carbolic acid injected. The injections were made into the jugular vein, they sometimes produced giddiness, in each horse produced obliteration of one vein, and as a noteworthy feature, increased and well sustained increase of appetite followed the injections. No improvement whatever occurred in the glanders case, the farcy case improved considerably, the leg diminishing and the buds healing. Both were destroyed and no post-mortem held.

Charles Sheather, F.R.C.V.S.

Communications, Books, and Papers received:—Messrs. G. G. Mayor, McLauchlan Young, C. Sheather, W. M. Hutchinson, S. Chambers, W. H. Williamson, J. Bunnell Fletcher & Son, "Pedagogue," Student R.V.S., "A Late Student," "Transactions of the Bombay Veterinary Association," "The Sun" (Baltimore), "Evening Dispatch" (Edin.)

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

We shall be obliged by early intelligence of all matters worth bringing under the notice of the profession, and thankful to any friends who may send us cuttings from local papers, containing facts of interest.

Communications for the Editor to be addressed 20 Fulham Road, S.W.